

the record-breaking overflow of 1928. There were also considerable losses of livestock.

The total damage of the flood, according to preliminary estimates which are subject to later revision, was \$326,400, which includes \$98,000 municipal damage in Ottawa. A total of 60,930 acres of land was flooded.

Ohio Basin.—High stages and some light flooding occurred in the Tygart River valley on Christmas day and the day following as a result of run-off from moderate rainfall that was augmented by melting of a rather heavy snow cover over the area. Flood stages were slightly exceeded at a few points but very little damage resulted. The same conditions produced moderate flood stages of the Monongahela on the 26th. Only minor damage was reported.

Moderately heavy rainfall in northern West Virginia on December 24–25, brought a sharp rise to above flood stage in the Little Kanawha River. At Glenville the crest was 4.2 feet above flood stage and at Creston 2.75 feet above flood stage. This was followed on the 27th by another rain of slightly more than an inch that brought a crest near flood stage at Glenville and 2.8 feet above flood stage at Creston. Little if any damage resulted.

Arkansas Basin.—Unusually heavy December rains produced stages considerably above flood stage on the Cottonwood and Neosho Rivers, about flood stage on the Arkansas at Arkansas City, Kans., and Ralston, Okla., and slightly under flood stage at Oxford, Kans. During the 3-day period, December 2–5, precipitation over the Cottonwood Basin ranged from nearly 3 inches in the headwaters to 5 inches at Emporia, Kans., and in the Neosho Basin, amounts ranged from over 4 inches at Council Grove, Kans., to slightly more than 1 inch at Oswego, Kans. Heavy rains, averaging about 3 inches, were reported from the same storm over the Verdigris and Walnut River Basins and in the immediate vicinity of Arkansas City and Oxford, Kans. The combination of rain falling on frozen ground with high base flows already prevalent produced floods that were extraordinarily high for December. The Cottonwood and upper Neosho Rivers reached stages within a foot or two of those reached in the destructive and record-breaking stages of April 1944. Minor flooding occurred along Bird Creek and Caney River; in the vicinity of Arkansas City, Kans., and Ralston, Okla.; and on the Walnut River at Eldorado, Augusta, and in the vicinity of Winfield, Kans.

Considerable damage resulted from the overflow, occurring mostly in the Cottonwood below Florence, Kans., and along the Neosho from Emporia to Iola, Kans.

Red Basin.—Heavy rains, totaling more than 5 inches at some stations from December 5–7, caused rises on the Saline, Ouachita, and Sulphur Rivers to crests that were slightly above flood stages. Very little loss resulted from the flood.

Additional heavy rains were general over much the same area during the last week of December and the Ouachita and Sulphur Rivers again overflowed. The flooding continued into January and will be discussed more fully in the report for next month.

West Gulf drainage.—Moderately heavy rain over western Louisiana and eastern Texas during the last few days of December caused rises in the streams of that area with light overflow at a few points along the Calcasieu, Trinity, and Guadalupe Rivers. No damage was reported except along the lower Trinity River where the loss is estimated at \$6,000.

FLOOD-STAGE REPORT FOR DECEMBER 1944

[All dates in December unless otherwise specified]

River and station	Flood stage	Above flood stages— dates		Crest 1	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
	<i>Feet</i>			<i>Feet</i>	
Roanoke: Williamston, N. C.	10	{ 4	6	10.3	5
Tar:		15	17	10.1	16
Rocky Mount, N. C.	9	2	2	9.1	2
Tarboro, N. C.	18	4	4	18.0	4
Greenville, N. C.	13	5	7	13.4	5
Neuse:					
Neuse, N. C.	14	Nov. 28	3	17.0	1
Smithfield, N. C.	13	Nov. 29	4	16.8	2
Cape Fear: Lock No. 2, Elizabeth- town, N. C.	20	1	3	21.6	2
MISSISSIPPI SYSTEM					
<i>Missouri Basin</i>					
Grand:					
Gallatin, Mo.	20	5	6	21.3	5
Chillicothe, Mo.	18	5	7	27.3	6
Brunswick, Mo.	12	6	9	13.5	6
Osage:					
Quenemo, Kans.	30	4	7	36.4	5
Ottawa, Kans.	24	5	8	33.9	6
Osawatomie, Kans.	28	5	10	38.8	7
La Cygne, Kans.	25	6	11	30.2	9
Trading Post, Kans.	24	6	12	27.2	10
<i>Ohio Basin</i>					
Tygart: Philippi, W. Va.	17	25	26	19.6	26
West Fork:					
Weston, W. Va.	17	25	26	19.0	26
Clarksburg, W. Va.	5	25	27	8.4	28
Middle Fork: Midvale, W. Va.	11	26	26	12.0	26
Monongahela:					
Lock No. 7, Greensboro, Pa.	30	25	26	33.7	26
Lock No. 4, Charleroi, Pa.	30	26	26	31.1	26
Lock No. 2, Braddock, Pa.	20.5	26	28	27.0	27
Little Kanawha:					
Glenville, W. Va.	23	25	26	27.2	26
Creston, W. Va.	20	26	27	22.8	27
<i>Arkansas Basin</i>					
Little Arkansas: Sedgwick, Kans.	18	5	6	23.2	5
Walnut:					
Eldorado, Kans.	9	4	5	10.6	5
Winfield, Kans.	23			31.9	7
Cottonwood:					
Cottonwood Falls, Kans.	9	4	7	15.0	5
Emporia, Kans.	20	4	10	26.0	6
Neosho:					
Council Grove, Kans.	24			25.1	5
Neosho Rapids, Kans.	22	5	9	27.6	5
Burlington, Kans.	27	4	10	34.3	6
LeRoy, Kans.	23	4	10	27.5	7
Iola, Kans.	15	5	12	21.1	8
Chanute, Kans.	20	5	12	27.7	10
Parsons, Kans.	22	7		26.5	14
Oswego, Kans.	17	6	15	23.05	14
Petit Jean: Danville, Ark.	20	8	10	21.2	9
Arkansas:					
Arkansas City, Kans.	16	5	7	16.85	6
Ralston, Okla.	16	7	7	16.0	7
<i>Red Basin</i>					
Saline: Benton, Ark.	20	7	7	22.0	7
Ouachita:					
Arkadelphia, Ark.	17	{ 7	9	19.8	7
		26	27	17.7	26
		27	30	19.3	29
Camden, Ark.	26	{ 10	15	28.4	13
		29	(3)		
Sulphur:					
Hagansport, Tex.	38	{ 6	6	38.7	6
		8	8	38.2	8
		27	31	39.7	28
Naples, Tex.	22	{ 9	15	24.1	12
		30	(3)		
WEST GULF OF MEXICO DRAINAGE					
Calcasieu: Kinder, La.	16	29	31	16.4	29
East Fork: Rockwall, Tex.	10	28	(3)		
Trinity:					
Trinidad, Tex.	28	30	(3)		
Liberty, Tex.	24	7	12	26.2	10
Guadalupe: Gonzales, Tex.	20	7	7	20.8	7

¹ Provisional.

² Estimated, water over gage.

³ Continued at end of month.